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(54) Title: RADIATION DETECTOR

(57) Abstract: A radiation detector made from a compound, or alloy, comprising CdxZn1-xTe ($0 \leq x \leq 1$), an element from column III or column VII of the periodic table in a concentration about 10 to 10,000 atomic parts per billion and an element selected from the group consisting of La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu in a concentration about 10 to 10,000 atomic parts per billion exhibits full electrical compensation, high-resistivity, full depletion under an applied electrical bias and excellent charge transport.

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